



Comments of Pacific Gas and Electric Company
Flexible Resource Adequacy Criteria and Must-Offer Obligation
Draft Final Proposal

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) offers the following comments in the stakeholder process for the California Independent System Operator’s (CAISO) Flexible Resource Adequacy Criteria and Must-Offer Obligation (FRAC-MOO) initiative February 7, 2014 Draft Final Proposal (Proposal).

In summary, PG&E’s comments are:

- PG&E supports the reduction in categories from four to three;
- PG&E supports two elements in the CPUC framework not found in the CAISO proposal;
- Local Regulatory Authorities (LRAs) have jurisdiction to determine the Effective Flexible Capacity;
- The allocation of the backstop cost should be to all deficient load serving entities;
- The CAISO should allocate backstop cost to all deficient load serving entities for simultaneous flexible and system shortfalls; and
- The CAISO needs to better define what is meant by “inaccurate data”.

PG&E also reiterates and adds supporting academic material to its recommendations on the requirement allocation methodology first described in our November 27, 2013 comments and continues to support two changes to the methodology.

- i. The flexibility requirement caused by variable energy resources’ (VERs) output should be allocated to VERs; and

- ii. The allocation to load should be done based on each load serving entity's (LSE) largest monthly ramp, regardless of coincidence to net-load peak ramp.

1. PG&E Supports the Reduction in Categories from Four to Three

PG&E appreciates the changes made to the FRAC-MOO category framework; particularly the reduction in categories from four to three and the change in the energy must offer obligation for Category 1. We believe these changes align the proposal more closely with the framework adopted in the California Public Utilities Commission's (CPUC) June 2013 RA decision.¹

2. PG&E Supports Two Elements in the CPUC Framework Not Found in the CAISO Proposal

The frameworks proposed by the CAISO and the CPUC are similar. However, there are some differences between the two proposals. Consistency between the CAISO and CPUC approaches is important. Variations in the frameworks introduce unnecessary procurement and compliance complexity. It could also lead to over-procurement or unneeded backstop cost – outcomes that could unnecessarily increase costs to California customers.

PG&E supports two elements in the CPUC's framework not found in the CAISO's proposal and recommends the CAISO adopt these elements into its design.

i. Effective Flexible Capacity calculations for both storage resources and demand response can reflect a negative Pmin

PG&E opposes the CAISO's proposal to only count the generation capacity of a storage resource in determining its effective flexible capacity (EFC). Rather, PG&E supports the Energy Division's proposal on EFC for storage resources.² In particular, PG&E supports allowing an EFC value to exceed the net qualifying capacity (NQC) value, recognizing that a storage resource can have a negative Pmin (this reflects that the resource may start in a charge/load mode). This approach recognizes the true flexibility of a resource that can transition between charging and generation modes. PG&E recognizes there may need to be software or operational changes to capture the full extent of storage flexibility in

¹ CPUC Docket No. R.11-10-023

² CPUC Energy Division, "Qualifying Capacity and Effective Flexible Capacity Calculation Methodologies For Energy Storage and Supply-Side Demand Response Resources", Resource Adequacy Proceeding R. 11-10-023, January 16, 2014, pp. 5-7. http://www.cpuc.ca.gov/NR/rdonlyres/59531E27-5A74-4E47-8551-0FBAB2DB6B0D/0/QCandEFCMethodologies_ESandSupplySideDR.PDF

CAISO market operations, and we are committed to working with the CAISO to address any issues.

More generally, the CAISO should honor the CPUC's adopted calculation methodologies for EFC, as is currently done with the calculation of QC values. PG&E addresses this issue later in our comments (item #3).

ii. Not allowing Regulation Energy Management resources to participate in the flexibility showing at this time

PG&E supports the CPUC's plan to delay incorporation of regulation energy management (REM) resources until more analysis can be performed. There is insufficient evidence to support inclusion of REM resources as eligible to meet the flexible capacity procurement requirement at this time. Moreover, the EFC of these resources should be determined by the applicable jurisdictional LRA. Further analysis of the role of REM resources in the flexibility framework is required.

3. LRAs Have Jurisdiction to Determine the Effective Flexible Capacity

Determination of the method to calculate resources' EFC is the jurisdiction of LRAs, including the CPUC. The CAISO should use the criteria provided by each LRA to determine and verify, if necessary, the EFC of all flexible resource adequacy (RA) resources. Only in the event that the CPUC or other LRA fails to provide an EFC value along with its definition to the CAISO, should the CAISO determine an EFC for a resource.³

This approach is similar to the LRA determination of qualifying capacity (QC) for generic RA. The CAISO has the authority to adjust the QC value to primarily adjust for transmission deliverability constraints, resulting in a net qualifying capacity (NQC). However, no deliverability adjustment is made for the flexible capacity, and, therefore, the CAISO should adopt the LRA-determined EFC without adjustment.

4. The Allocation of the Backstop Cost Should Be to All Deficient LSEs

The CAISO proposes to allocate flexibility backstop cost to only those deficient LSEs that are in a deficient LRA. In other words, a deficient LSE can be sheltered from backstop costs if other LSEs in its LRA show more flexibility than their requirement. This allocation design creates an incentive for an LSE to under procure flexibility by

³ This approach is consistent with existing CAISO Tariff determination of qualifying capacity for RA resources. In particular, it reflects section 40.4.1, Eligible Resources and Determination of Qualifying Capacity, and section 40.8, CAISO Default Qualifying Capacity Criteria.

relying on its sister LSEs being good citizens. PG&E recommends a simple solution that all deficient LSEs (based on the allocation determination made by the LRAs) receive a pro rata allocation of the backstop cost regardless of the deficiency status of the LRA.

5. The CAISO Should Allocate Backstop Cost to All Deficient LSEs for Simultaneous Flexible and System Shortfalls

In the event of a simultaneous flexible and system RA shortfall, the CAISO plans to backstop flexible capacity first to address both needs. In this situation only the flexibility-deficient LSE would be allocated the backstop cost. No cost would be allocated to the system-deficient LSE, unless the backstopped flexible capacity did not fill the entire system shortfall. This incremental allocation approach violates the principle of cost causation. Although PG&E supports the CAISO procuring capacity that can remedy simultaneous shortfalls, the allocation should be modified so that both parties are allocated a portion of the costs.⁴

The CAISO defined “cost causation” in its 2012 Cost Allocation Guiding Principles Initiative. The CAISO determined that “costs will be charged to resources and/or market participants that benefit from and/or drive the costs. It is a fundamental tenant of just and reasonable energy markets that costs are allocated in this manner.”⁵ The CAISO’s plan to allocate the cost to only the flexibility-deficient LSE violates the CAISO’s cost causation principle. The system-deficient LSE has driven a portion of the backstop need and should be allocated a portion of the costs.

6. The CAISO Needs to Better Define What Is Meant by “Inaccurate Data”

The Proposal specifies that the CAISO, upon discovery of a data inaccuracy, may recalculate the flexible capacity requirement for the entire year and charge the LSE which submitted the inaccurate data the cost of any additional backstop. Inaccurate data can have many causes that range from deviations from reasonable assumptions and forecasts to willful deceit. The CAISO needs to better define which inaccuracies would trigger a recalculation and which are a reasonable result of normal forecasting and would not trigger a recalculation.

7. PG&E Continues to Support Two Changes to the Flexibility Requirement Allocation Methodology

⁴ This statement is predicated on PG&E’s understanding of how the concept of “bundling” is applied in 2015.

⁵ CAISO Cost Allocation Guiding Principles Draft Final Proposal, March 15, 2012.

<https://www.caiso.com/Documents/DraftFinalProposal-CostAllocationGuidingPrinciples.pdf>

PG&E maintains that the approach first described in our Nov. 27, 2013 comments is most closely aligned with the principle of cost causation. PG&E continues to support two changes to the methodology used to allocate the flexibility requirement.

- i. The flexibility requirement caused by variable energy resources' (VERs) output should be allocated to VERs; and
- ii. The allocation to load should be done based on each load serving entity's (LSE) largest monthly ramp, regardless of coincidence to net-load peak ramp.

Flexibility Requirement Caused by VERs' Output Should Be Allocated to VERs

PG&E supports allocating the flexibility requirement caused by VERs to VERs. An allocation to VERs is fair, helps create efficient procurement outcomes and does not put at risk grid reliability.

As discussed in PG&E's previous comments, allocation of the flexibility requirement of merchant VERs or VERs with non-CAISO off-takers to CAISO participants is unjust and unreasonable. Other control areas, such as Puget Sound Energy (Puget)⁶ and Westar Energy⁷, have recognized the need to fairly allocate the fixed capacity costs associated with regulation services. Puget developed Federal Energy Regulatory Commission (FERC) approved regulation service charges for generators that include the capacity cost of resources needed to balance intermittent generation. These costs are allocated by Puget to generators that export their power or serve the energy needs inside the control area. The CAISO should take a similar approach in allocating flexibility requirements to generators that export their energy or serve CAISO load.

The allocation of the flexibility requirement to VERs will also promote efficient procurement outcomes. If the true cost of VERs is allocated to VERs, then these costs will be reflected in their offers to energy and capacity solicitations. This means that the true costs will be reflected in the offers, and the procurement will be based on a more accurate cost basis resulting in better procurement decisions. Moreover, having these costs correctly accounted is also fairer to

⁶ Puget Sound Energy's Compliance Filing Regarding Revisions to Settlement and Submission of Schedules 3 and 13 of Puget Sound Energy, Inc.'s Open Access Transmission Tariff, Feb. 6, 2013.

<http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13173234>

⁷ Westar Balancing Area Services Agreement and Schedule 3A to Open Access Transmission Tariff, June 3, 2009.

<http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12041334>

competing resource technologies that have lower or little flexibility requirement costs.

Allocation of the flexibility requirement to VERs will not put at risk grid reliability. One possible solution suggested at the stakeholder meeting to eliminate the possibility of CAISO load procuring flexibility on behalf of non-CAISO load was for the CAISO to remove the generation and variability produced by VERs from non-CAISO off-takers from the requirement calculation. This approach is fundamentally flawed. Either the CAISO needs the flexibility to meet the intermittent burden placed on the system or it does not. The requirement does not disappear simply because there is a non-CAISO off-taker (assuming the generator is not dynamically metered). If the requirement is needed for reliable grid operations, then the flexibility should be procured and the costs allocated to the responsible VER. Artificially reducing the requirement puts the CAISO's reliability at risk.

Finally, the issue of grandfathering for VERs is irrelevant. This is a new requirement for both load and generators to better reflect the changing energy market. The CAISO is not seeking to eliminate an established CAISO settlement calculation. The fair allocation of this new requirement to all participants (load and generation) needs to be considered. This is similar to the approach taken in the FERC settlement for the Flexible Ramping Constraint cost. Like the flexible capacity requirement, this was a new cost. The issue of cost allocation among load and generation was considered in the settlement, and generators are allocated that portion of the cost that was determined attributable to them (25%).⁸ Similar to the Flexible Ramping Constraint, a portion of the flexibility requirement should be allocated to the generators causing the requirement.

Allocation to Load Should Be Done Based on Each LSE's Largest Monthly Ramp, Regardless of Coincidence to Net-Load Peak Ramp

PG&E maintains that the non-coincident approach for the allocation due to load is preferable to the CAISO's allocation based on ramps coincident to the system net load ramp. The CAISO's coincident peak approach can result in one LSE benefiting from the flexible capacity procured by another LSE and not sufficiently contributing to the procurement of flexible capacity. As shown in the simple example in our Third Straw comments, a fairness issue exists with the coincident approach. A non-coincident approach addresses this flaw.

⁸ CAISO Fifth Replacement Tariff, Section 11.25.3.
http://www.caiso.com/Documents/Section11_CaliforniaISOSettlements-Billing_Nov1_2013.pdf

Moreover, academic research provides a foundation for allocating some measure of capacity costs to off-peak users. Research by Vardi, Zahavi, and Avi-Itzhak argues that although capacity procurement is based on the coincident peak load, it benefits all other hours by reducing the loss of load probability (LOLP) in each hour. Their paper states that:

“...modern power utilities are not designed just to meet the peak demand for power, but rather to deliver power at a certain level of reliability. Since the reliability performance of a power system is affected by all types of customers, any sustained increase in demand at any hour, including off-peak hours, calls for adding extra capacity to the system; otherwise the reliability design target will not be met. Consequently, *each hour contributes its own share to the need to incur capacity costs*, and should therefore have that responsibility reflected in its price.⁹ [Emphasis added.]

This research was accompanied by a consistent methodology for allocating capacity costs to all hours based on such contribution. These findings readily apply to the allocation of flexible capacity procurement obligations and support PG&E’s view.

PG&E believes that entities benefitting from procured flexibility should be required to pay a portion of the procurement costs, just as entities benefitting from the investment of transmission are required to pay for a portion of the costs of that transmission.¹⁰ This premise underlies PG&E’s proposed allocation methodology – that all entities will utilize and benefit from procured flexible capacity, regardless of their contribution to the coincident system net load ramp.

⁹ Vardi, Zahavi, and Avi-Itzhak, “Variable load pricing in the face of loss of load probability”, The Bell Journal of Economics, Vol 8, No 1 (Spring 1977), article p. 2.

¹⁰ FERC Transmission Planning and Cost Allocation by Transmission Owning Utilities, Notice of Proposed Rulemaking, Issued June 17, 2010, Docket RM10-23-000, p79-80. <http://www.ferc.gov/whats-new/comm-meet/2010/061710/E-9.pdf>